

02582

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Salem, ME 04074  
www.gawronturgeon.com  
Tel. 207.883.6307  
Fax 207.883.0361

Village at Little Falls

Windham, Maine

REVISIONS	
#	DATE DESCRIPTION
1	06-01-07 PRELIMINARY PLANNING BOARD SUBMISSION

DATE:	6-1-07
PROJECT #	011306
DRAWN BY:	RLD
CHECKED BY:	RLD
DRAWING SCALE	1/4" = 1'-0"

SHEET TITLE

COTTAGE-TYPE E  
FLOOR PLANS

E-A100

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**A1 COTTAGE E-FIRST FLOOR PLAN**

1/4"=1'-0" 1,680 SF

**A11 COTTAGE E-SECOND FLOOR PLAN**

1/4"=1'-0" 1,530 SF

02583



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Village at Little Falls  
Windham, Maine

REVISIONS		
#	DATE	DESCRIPTION

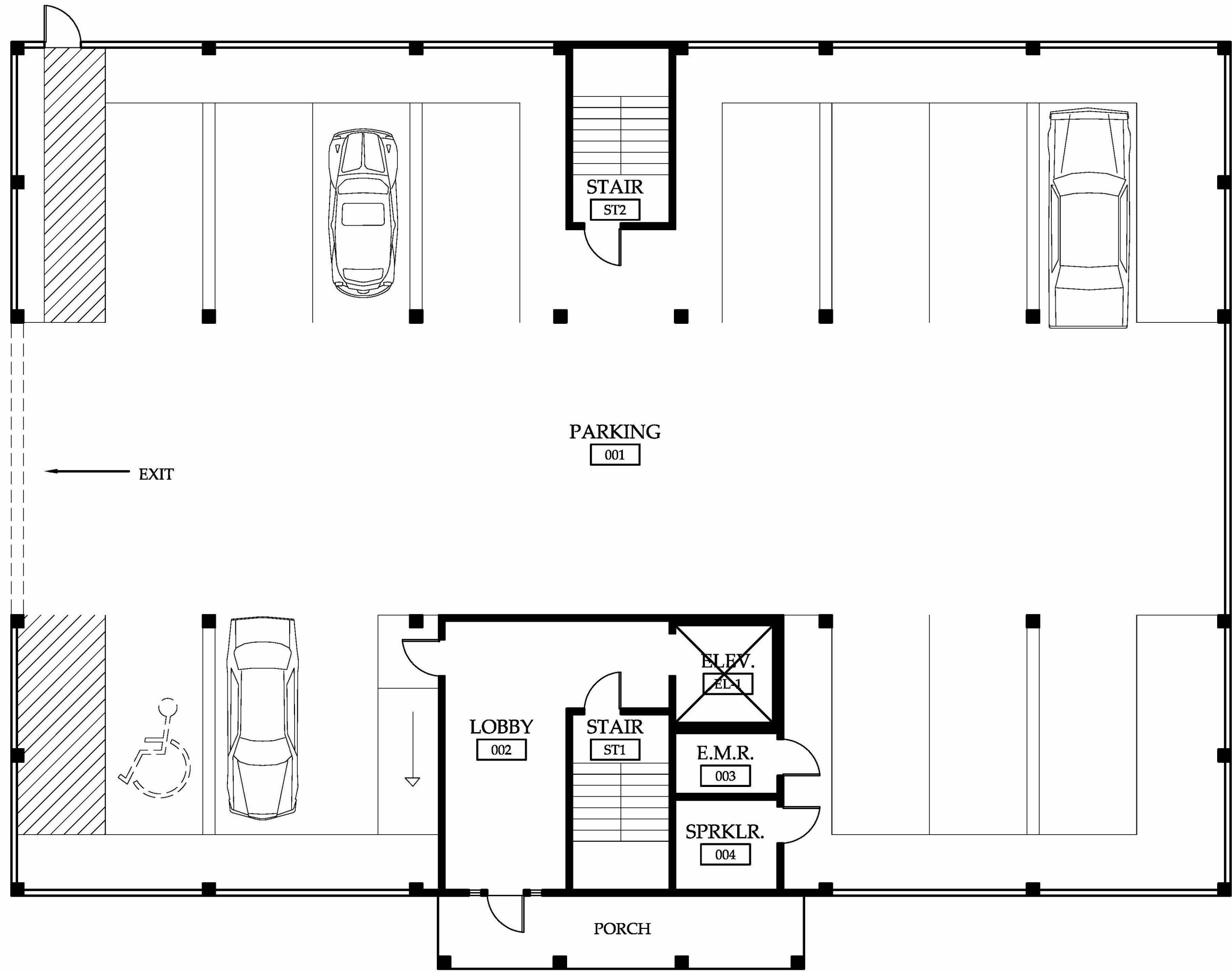
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PROJECT #	011306
DRAWN BY:	R.L.D
CHECKED BY:	R.L.D
DRAWING SCALE	1/4"= 1'-0"

SHEET TITLE

APARTMENT  
BUILDING-TYPE A  
MAIN LEVEL  
PARKING PLAN

A-A101

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E N G I N E E R S

Civil Engineers & Land Surveyors

June 12, 2007

Project 064006-02

Lee D. Allen, P.E.  
Northeast Civil Solutions  
153 U.S. Route 1  
Scarborough, Maine 04074

RE: Structural Condition Investigation  
HRC Village at Little Falls, LLC  
South Windham, Maine

Dear Lee:

Oak Engineers, LLC. (Oak) has completed structural condition investigation of the existing power plant and abandoned mill building foundations at the above site in accordance with our agreement dated March 12, 2007. The purpose of this investigation is to assess existing conditions and determine viable options for installing a retaining wall adjacent to the power plant property, which is currently owned and operated by Sappi. We understand that the proposed retaining wall must support the adjacent property without removing any of the existing back fill materials or disturbing the structure.

#### **SCOPE OF INVESTIGATION**

The investigation included the following tasks:

1. A site visit was conducted on February 8, 2006, and on March 29, 2007, by engineers from Oak to visually observe structural conditions of the mill building foundations and adjacent Sappi power plant. Mr. Tom Howard of Sappi provided access to the existing power plant during the March 2007 visit and provided general information regarding the power plant building's construction.
2. During the March visit, a dimensional survey of important building components and surrounding grades was conducted by Oak.
3. Existing conditions plan and section of the mill building and adjacent property was developed based on the field survey and information provided by Sappi (see Attachment)
4. An engineer evaluated existing structural conditions as well as subsurface information provided in a geotechnical report previously provided by Oak (report dated February 27, 2007) with respect to the proposed construction plans by Northeast Civil Solutions, Inc. (NCS).



5. Recommendations for design and construction of a retaining wall adjacent to the Sappi property and along the river were developed.

## EXISTING CONDITIONS

### Mill Building

The abandoned mill building is generally constructed of reinforced concrete columns, beams, and exterior walls, with either flat slab or ribbed floor construction. The south basement wall that is parallel to the river consists of 12-inch-thick concrete wall approximately 8 feet in height above the basement level floor slab and supports the exterior brick masonry walls extending three levels above the basement floor. It appears that the basement wall adjacent to the river is supported on concrete piers spaced approximately 25 feet apart.

The basement wall located at the west end of the building consists of approximately 48-inch-thick stone masonry wall extending approximately 8 feet above the elevated basement floor. Above the stone masonry, the wall is constructed of approximately 40-inch-thick brick masonry to the first-floor level. It appears that the upper brick masonry wall was originally above grade since large areas were blocked with concrete masonry units where windows once existed.

Water flows through open brick culverts (possibly penstocks) from the power plant property on the west side of the mill building and beneath the elevated structural floor slab in the basement. The water is directed and channeled through a system of concrete holding tanks and conduits beneath the slab and returns to the river beneath the building foundations on the south wall adjacent to the river.

Minor cracking or deterioration was observed in the south basement wall. The west basement wall appears to be stable at the stone masonry base. However, some buckling, patching, and localized structural failure was noted in the upper brick masonry wall.

The concrete walls, columns, and floors were sounded with sledge hammer in several locations and appeared to be sound.

### Power Plant

The adjacent power plant building is constructed of cast-in-place concrete foundations and floor slabs with steel-framed and masonry superstructure. The powerhouse has three separate floor levels with elevations noted in the attached sketch provided by Sappi. The power house is connected to the existing mill building with a stone masonry foundation wall and upper concrete wall. There is a large opening in the stone masonry foundation wall approximately 4 feet wide by 8 feet high which provides access from the mill building to the tailrace area of the power plant.

The building appears to be in good condition and no significant damage was noted during our brief visit.



## CONCLUSIONS

Based on the information obtained from this investigation, the following opinions regarding structural condition and the proposed construction are rendered:

- The existing power plant structure is not rigidly connected or attached to the mill building. Therefore, the proposed construction of a retaining wall should not disturb the existing structures.
- The mill building's basement wall adjoining the two properties is in poor condition.
- The existing open culverts beneath the mill building foundation wall are hydraulically connected to river flow.

## RECOMMENDATIONS

Constructing the proposed retaining wall adjacent to the power plant is considered feasible; however, we recommend the following precautionary measures:

- Due to the poor condition of the existing basement wall adjoining the two properties, the existing wall should remain in place and be properly braced throughout construction of the proposed wall.
- The existing underground brick conduits must be either blocked in place or otherwise re-routed through the proposed wall. Further investigation of the implications of blocking these hydraulic structures is recommended, if blocking is the preferred alternative.

The following options were considered viable approaches for constructing the proposed retaining structure:

1. Soldier pile wall with lagging.
2. Rigid concrete retaining wall.

The first option would require steel H-piles spaced approximately 6 feet on center and socketed into sound bedrock. Additionally, the finished wall would most likely require either tie-backs or struts due to the proposed retained height and apparent depth to bedrock. Tie-backs would extend into the adjacent property and require anchorage into the bedrock, and therefore are not feasible for this project. Struts would require steel supports extending into the river bank and were considered to be costly and unsightly. Therefore, due to costs and aesthetics, we considered this option to be no longer feasible.

We recommend that the proposed retaining wall consist of reinforced concrete stem and foundation supported on micro-piles socketed into the bedrock. We believe micro-piles will provide adequate tensile

Lee D. Allen, P.E.  
Northeast Civil Solutions

and compressive strength for the proposed wall foundations and, due to the wall's rigidity, tie-backs or struts will not be required.

## CLOSURE

This report has been prepared to assist in the design and construction of an earth retaining wall structure as part of the Village at Little Falls development in, South Windham, Maine. The recommendations have been presented on the basis of an understanding of the project as described herein, and through the application of generally accepted foundation engineering practices. No other warranties, expressed or implied, are made.

We thank you for the opportunity to provide structural engineering services to assist in developing plans for this project. Please call me if you have any questions regarding this report or need any further assistance. We will proceed with developing design plans and details for Option 2 above and according to our agreement unless you provide direction otherwise.

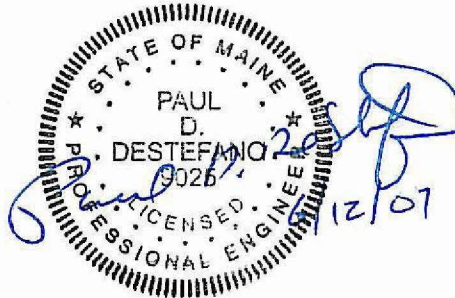
Sincerely,

OAK ENGINEERS, LLC.

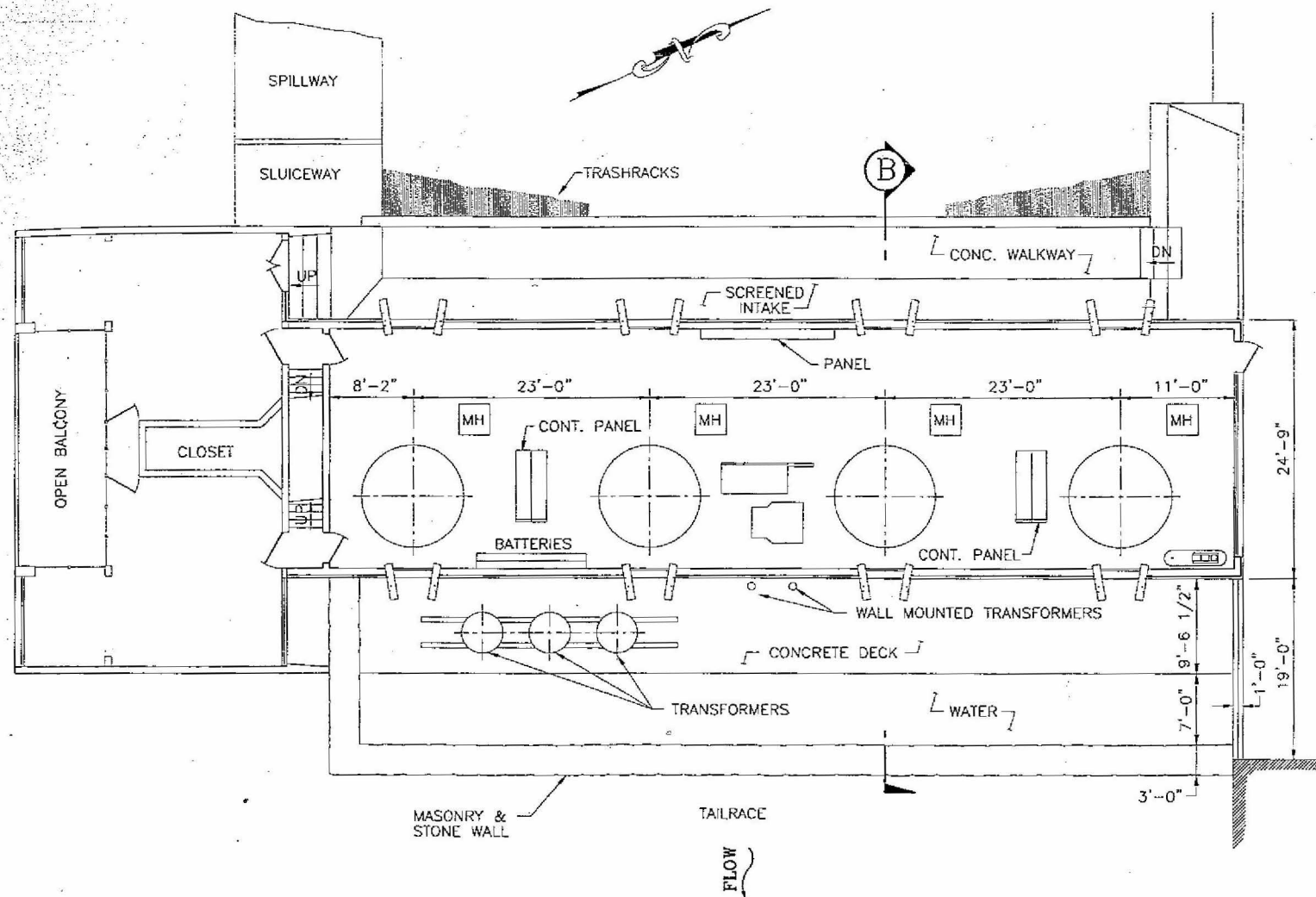
Paul D. DeStefano, Ph.D., P.E.  
Director, Geotechnical and Structural Services

PDD:sh  
Attachments

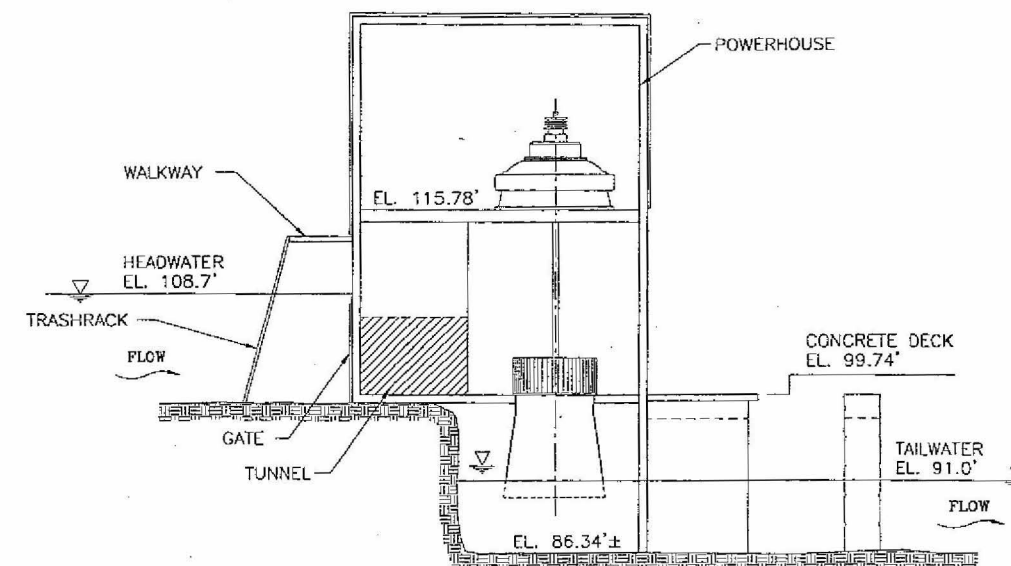
cc: Steve Etzel, Questor, Inc.  
S. D. Warren Company



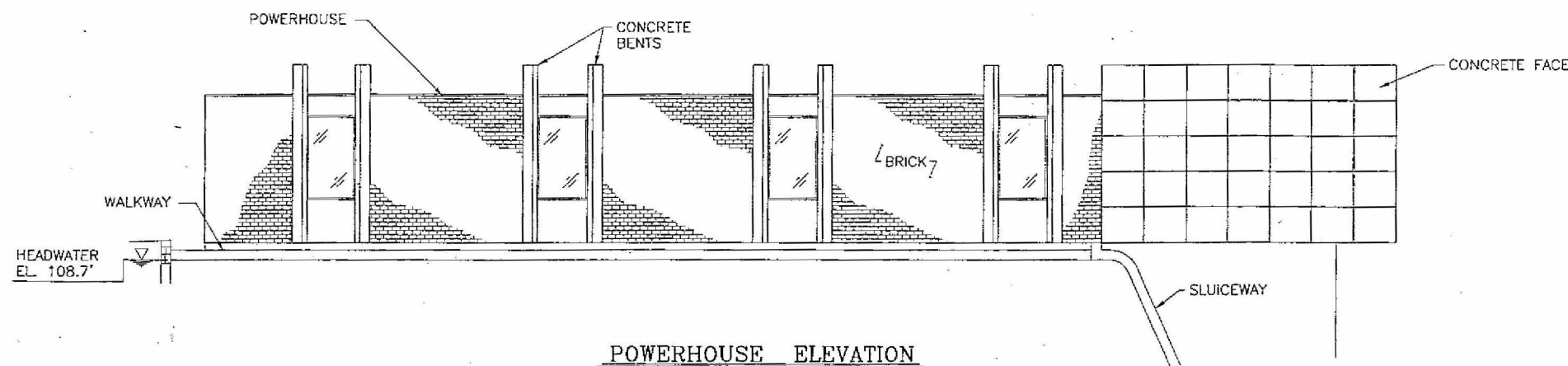




POWERHOUSE PLAN



SECTION B



POWERHOUSE ELEVATION

8 0 8 16  
SCALE IN FEET

NO.	REVISIONS	MADE BY	DATE
		CHK.	

**KA** Kleinschmidt Associates  
Consulting Engineers  
Pittsfield, Maine

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S. D. W. EQUIPMENT SYSTEMS NUMBERS

814-01.60-013  
876-000.60-004  
876-118.60-000  
814-01.60-000

HYDRO ELECTRIC  
LITTLE FALLS  
POWERHOUSE PLAN AND SECTION

**S. D. WARREN CO.**  
WESTBROOK, MAINE

DESIGN	SCALE AS SHOWN
DRAWN HWF	JOB ORDER
APPROVED	DEPT 814-01
CHECKED MCS	DATE 12-8-97
DWG NO. CB-63341	SHT NO. 2 of 2

EXHIBIT F SHEET 2 OF 2

LITTLE FALLS PROJECT  
FERC NO. 2941  
POWERHOUSE PLAN  
AND SECTION  
S.D. WARREN COMPANY  
WESTBROOK, MAINE

KA 023-057 12/98

**KA** Kleinschmidt Associates  
Consulting Engineers  
Pittsfield, Maine

SHEET NO.	OF	Drawn by	Date	Chkd.	Revision
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		Checked by	Date		
		Approved by	Date		
		Scale	AS SHOWN		

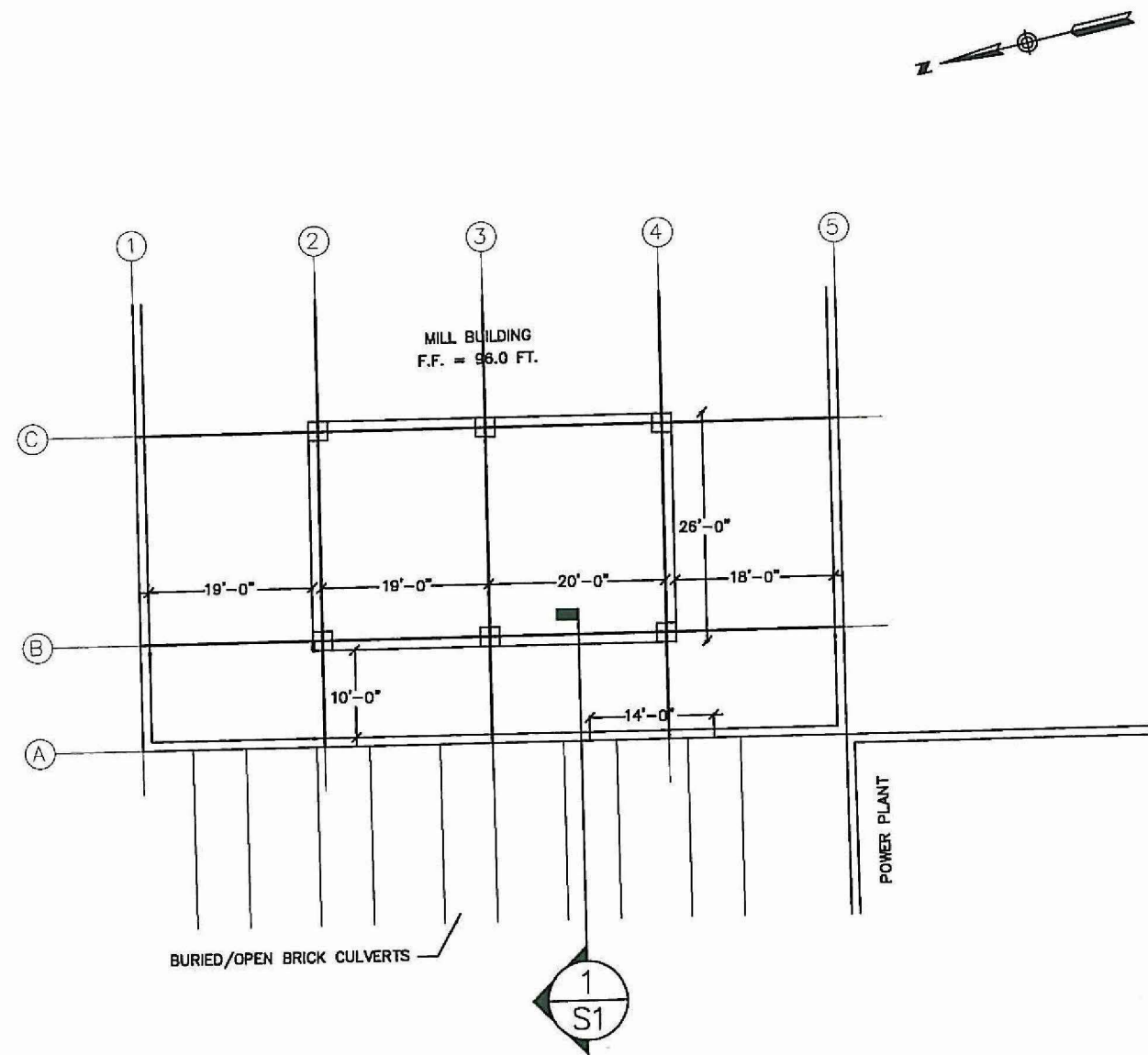
NOTE: ALL ELEVATIONS ARE U.S.G.S. DATUM

THIS DRAWING IS A PART OF THE APPLICATION FOR A LICENSE BY THE UNDERSIGNED ON THIS 20th DAY OF Jan. 19 99 BY Thomas P. Warren S.D. WARREN.

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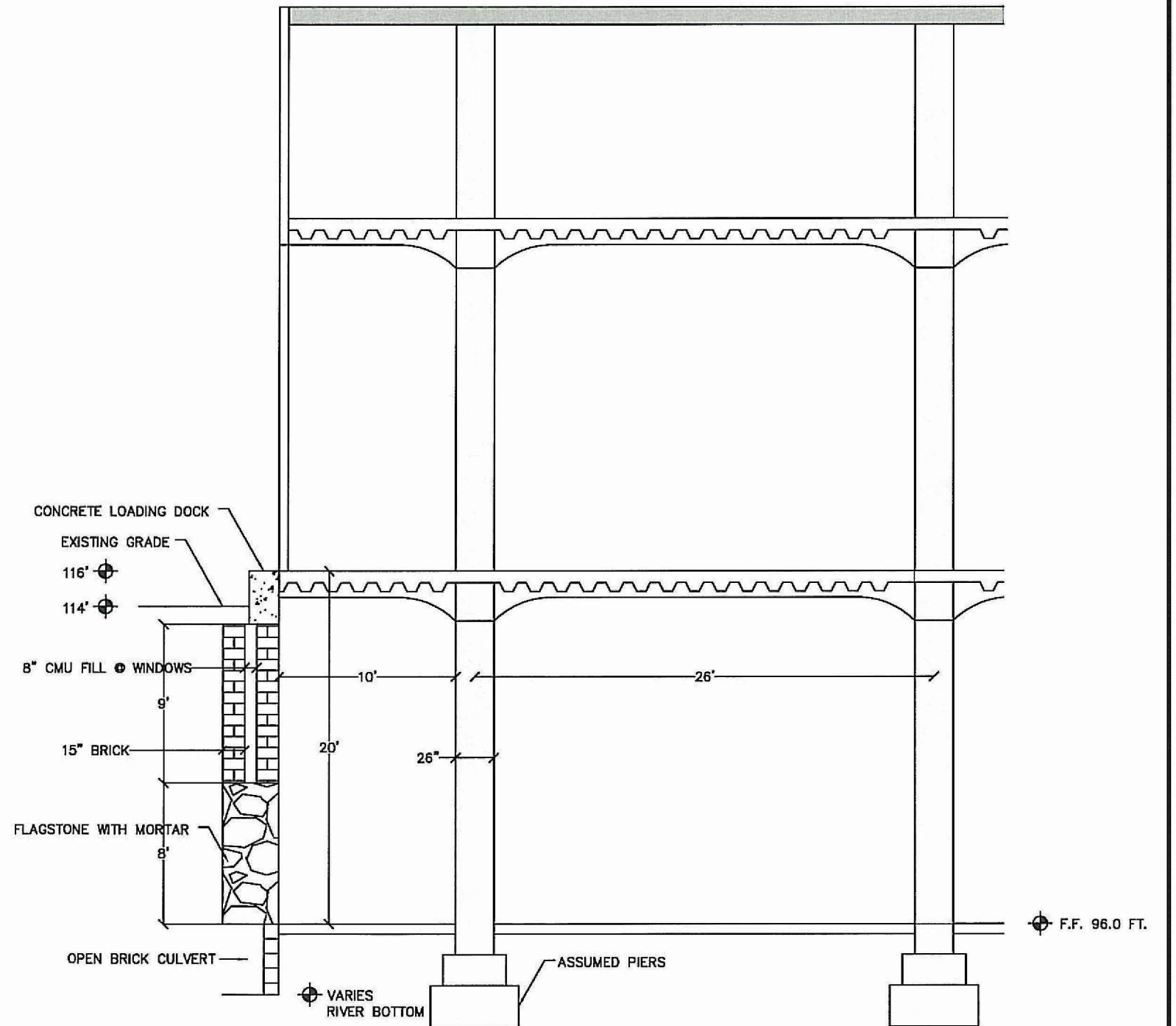
EXHIBIT F SHEET 2 OF 2 FERC NO. 2941





### PARTIAL SITE PLAN

SCALE: 1" = 40'



### TYPICAL SECTION

SCALE:  $\frac{1}{8}" = 1'-0"$

**VIL\_RESP02589**



Brown's Wharf  
Newburyport, MA 01950  
(978) 465-9877

PREPARED FOR:

NORTHEAST CIVIL SOLUTIONS  
153 US ROUTE 1  
SCARBOROUGH, ME 04074

SITE:

VILLAGE AT LITTLE FALLS  
13 DEPOT STREET  
SOUTH WINDHAM, MAINE

DATE: JUNE 2007

PROJECT: 064006

FIGURE: 1

**RESURGENCE**  
ENGINEERING & PRESERVATION, INC.  
132 BRENTWOOD STREET  
PORTLAND, ME 04103  
V/F (207) 773-4880  
RESURGENCE@VERIZON.NET

CLIENT: NORTHEAST CIVIL SOLUTIONS  
153 U.S. ROUTE 1  
SCARBOROUGH, ME 04074

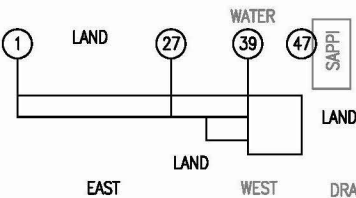
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DRAWN BY: A. HODSON	CHECKED BY: A. HODSON
PROJECT NUMBER: 08-027	CAD FILE LITTLE FALLS.DWG

P.E. STAMP --- ENGINEER OF RECORD

PROJECT:  
KEDDY MILL FDN ASSESSMENT  
SOUTH WINDHAM, ME

**SYMBOL KEY**

- 2.X PHOTO NUMBER      \* SUMMIT BORING OR PROBE
- SLAB ACCESS HOLE



DRAWING NUMBER:  
**S 1**  
SHEET X OF Y

**PRESUMPCOT RIVER BASIN**

- ASSUMED ELEVATED OVER LESS THAN ONE FOOT TO GRADE OR WATER  
ELEVATED OVER WATER

FLAT STRUCTURAL CONCRETE SLAB      CONCRETE FLOOR JOISTS

TOP OF SILT EL. 86.0'±  
BOT OF GRADE BEAM EL 91.4'

TOP OF SLAB EL. 94.0'±

TOP OF SILT EL. 86.0'±

TOP OF SLAB EL. 94.5'±

TOP OF SILT EL. 86.0'±

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TOP OF SLAB EL. 94.0'±

TOP OF SILT EL. 86.0'±

TOP OF SLAB EL. 94.0'±

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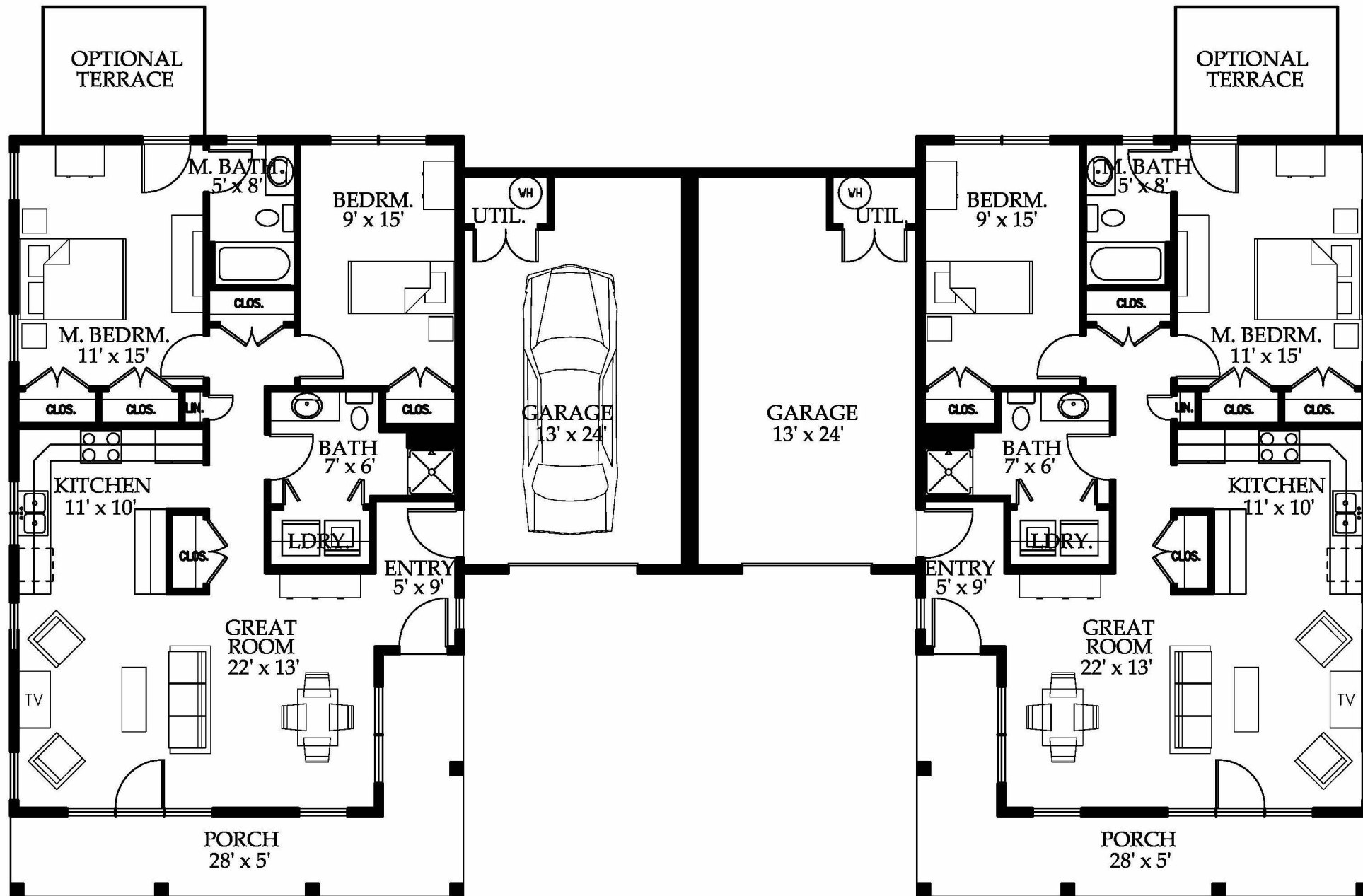
**FILL**

1E SCHEMATIC SITE PLAN  
1/32" = 1'-0" AT 11x17

ADJACENT BUILDING TO BE DEMOLISHED

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02591



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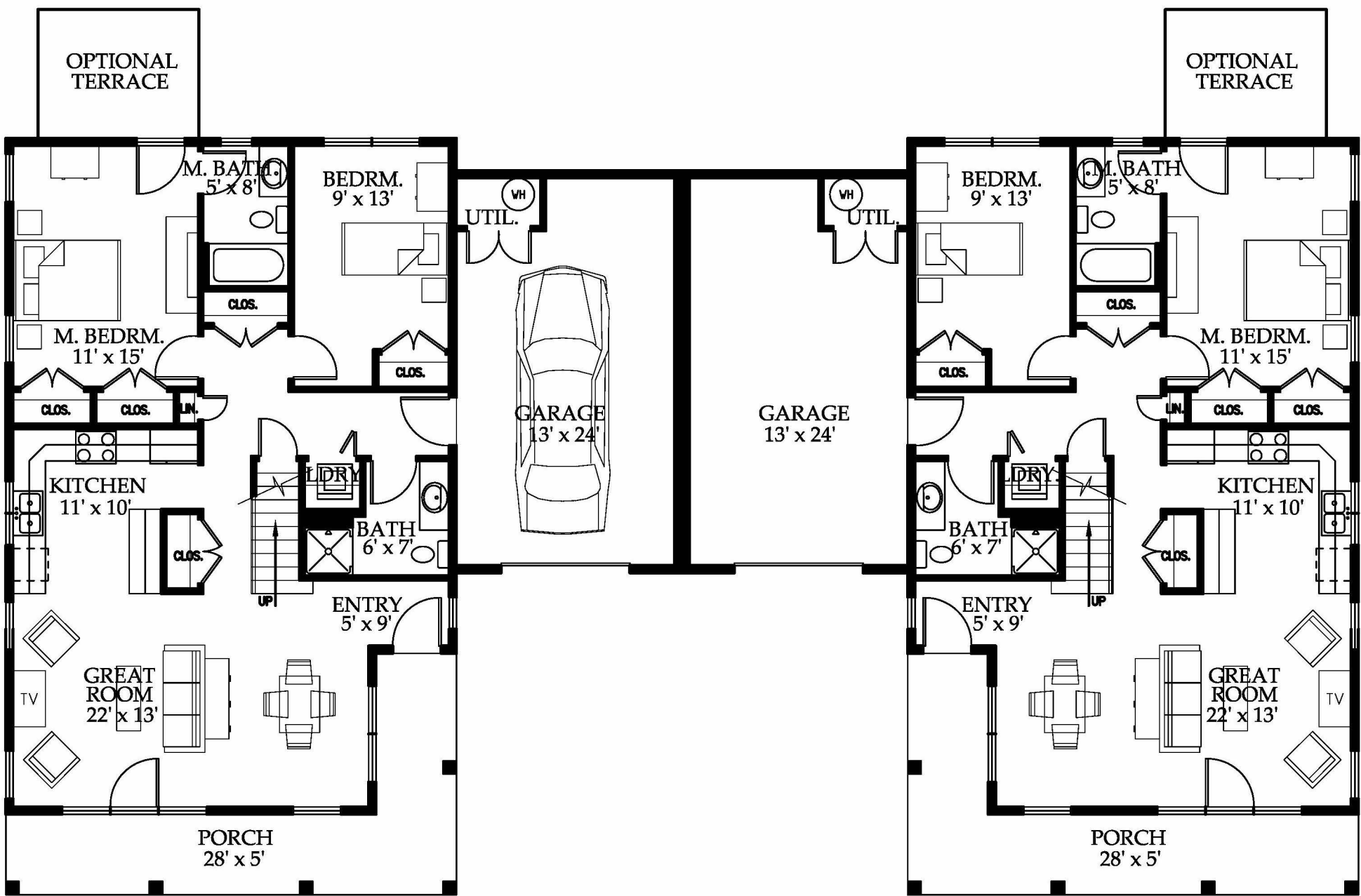
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COTTAGE-TYPE 1  
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LOFT OPTION

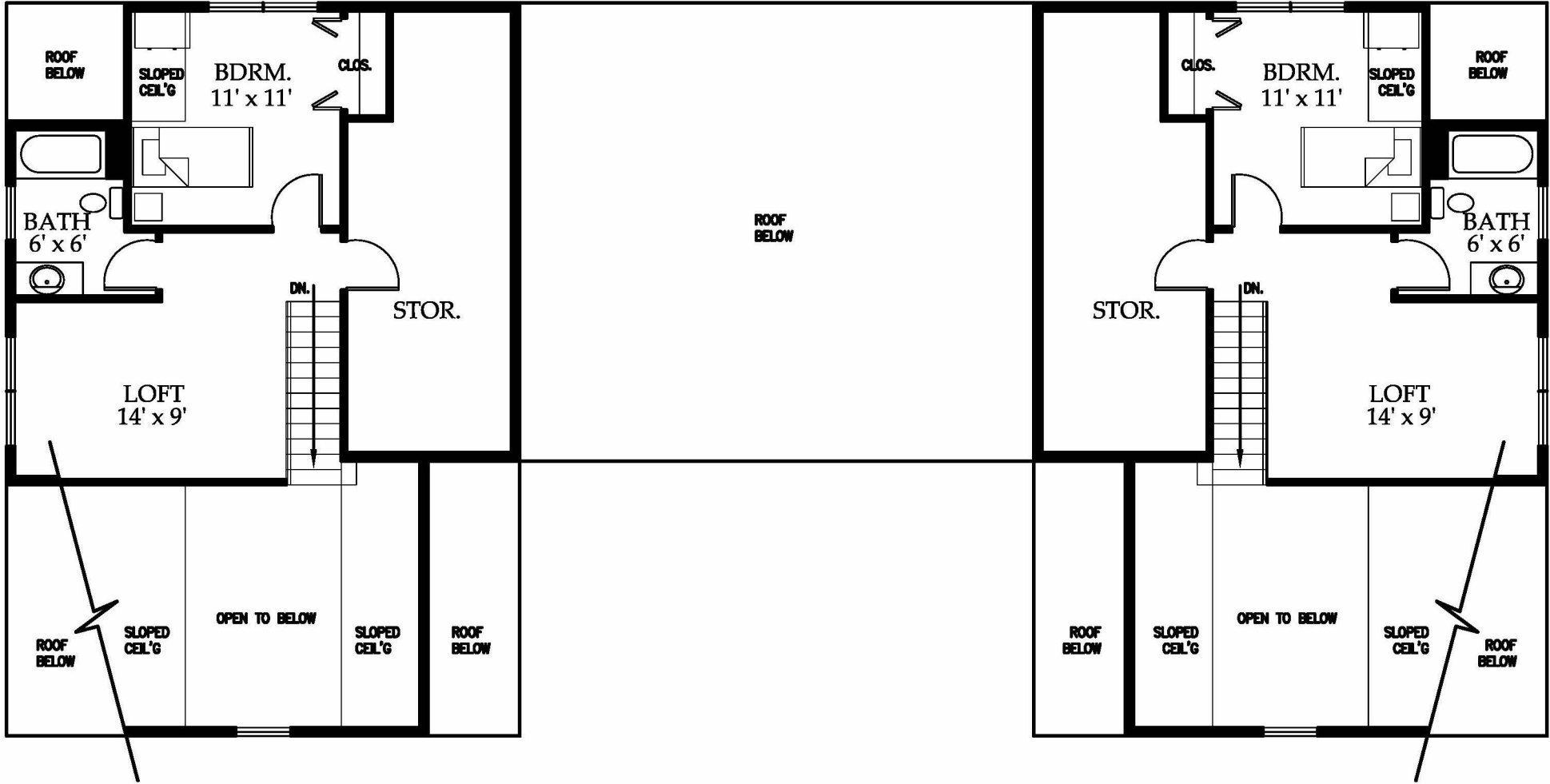
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A1 COTTAGE 1- FIRST FLOOR PLAN - LOFT OPTION (1,126 SF)

1/8"=1'-0"  
1,070 SF

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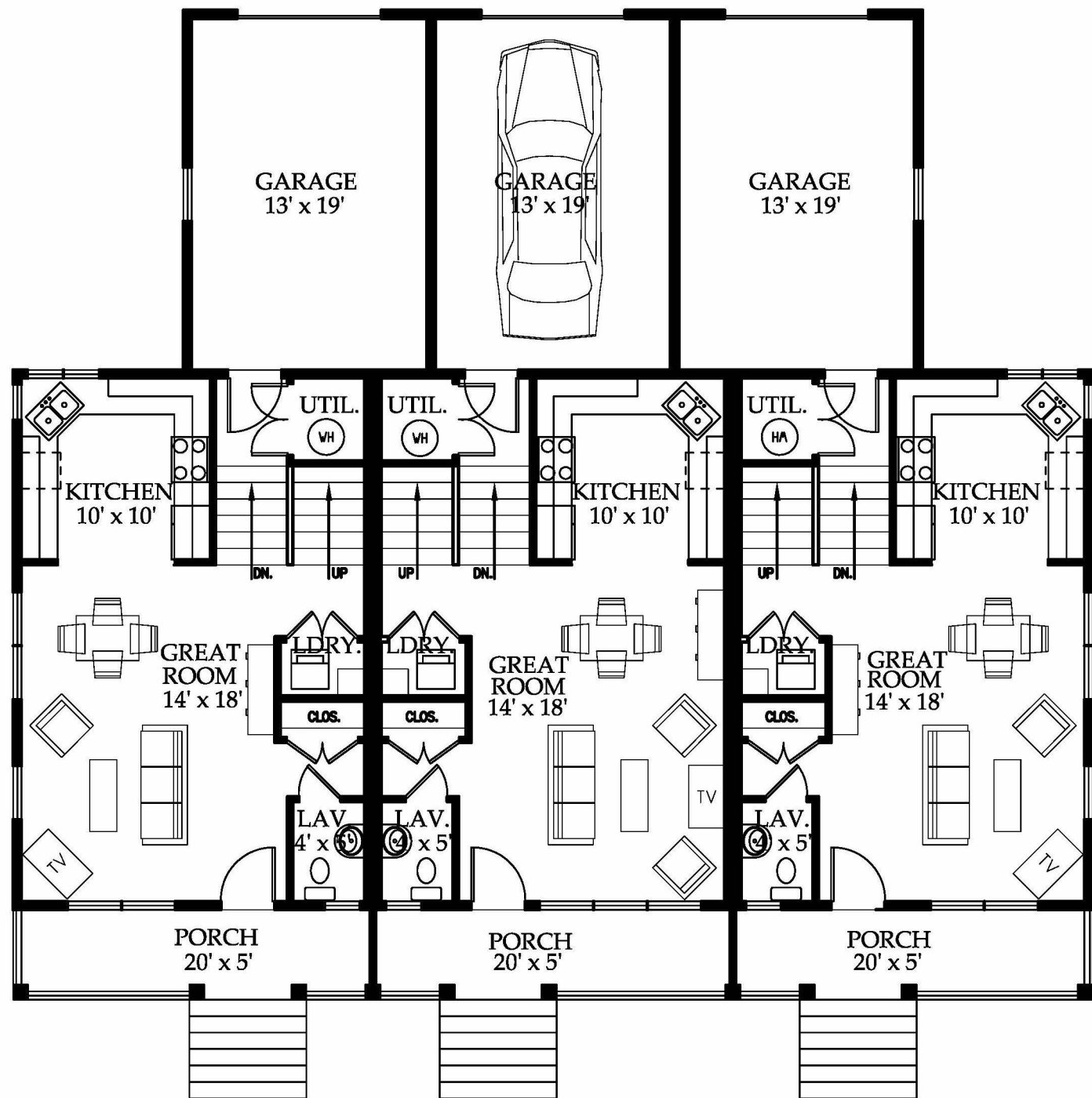
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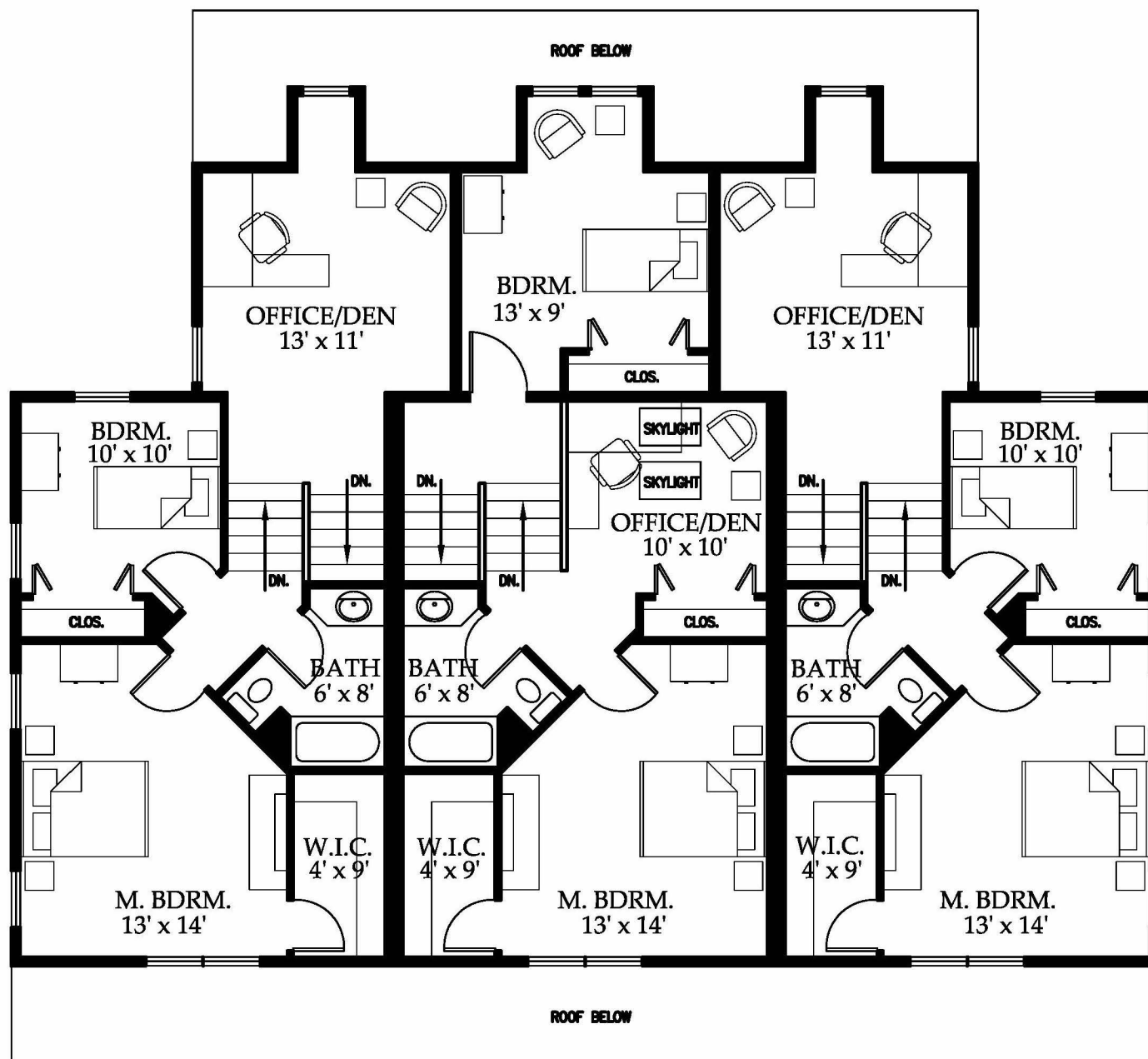
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1 FIRST FLOOR PLAN-PORCH UNITS



A11 SECOND FLOOR PLAN-PORCH UNITS

02594



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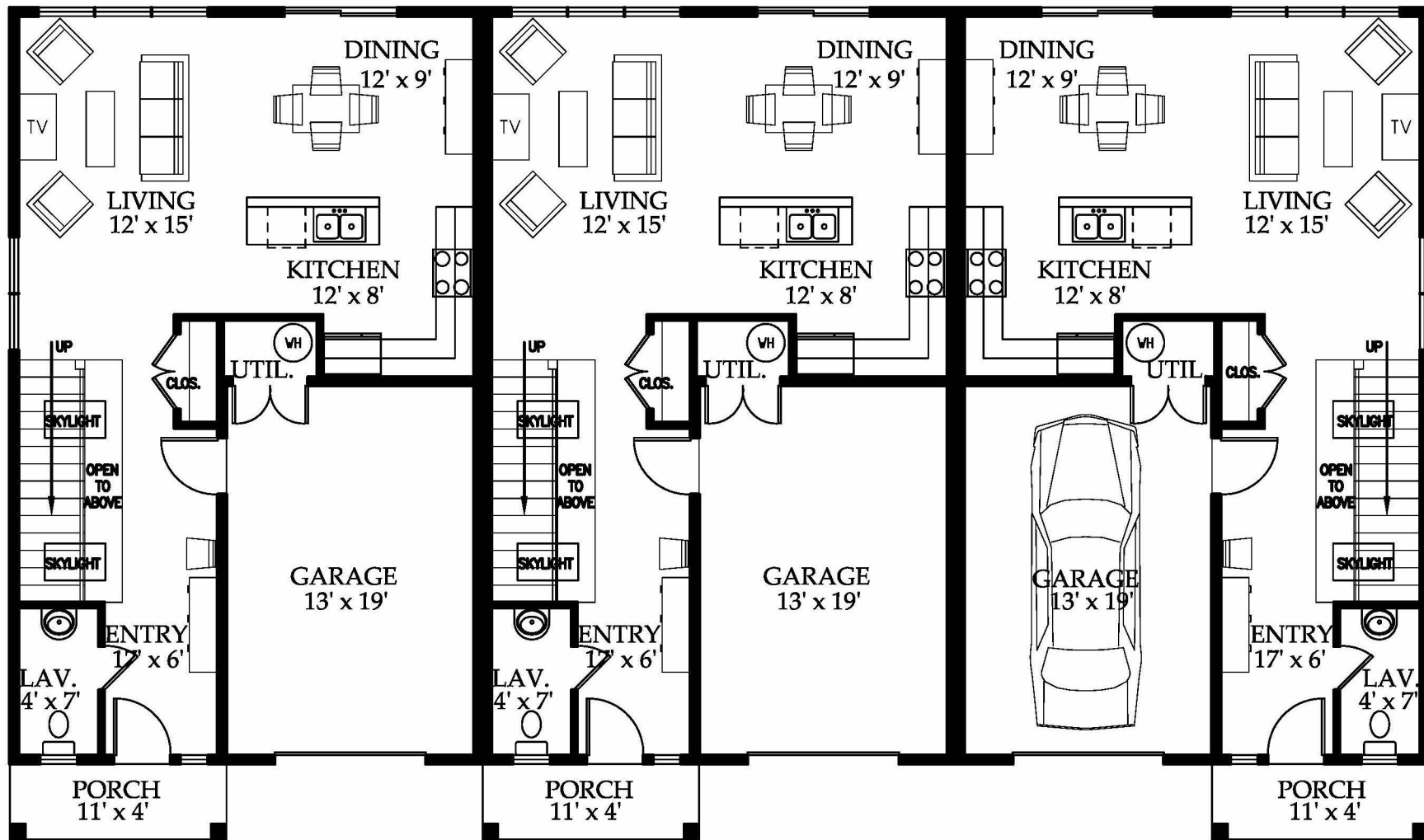
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PORCH UNITS

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02595

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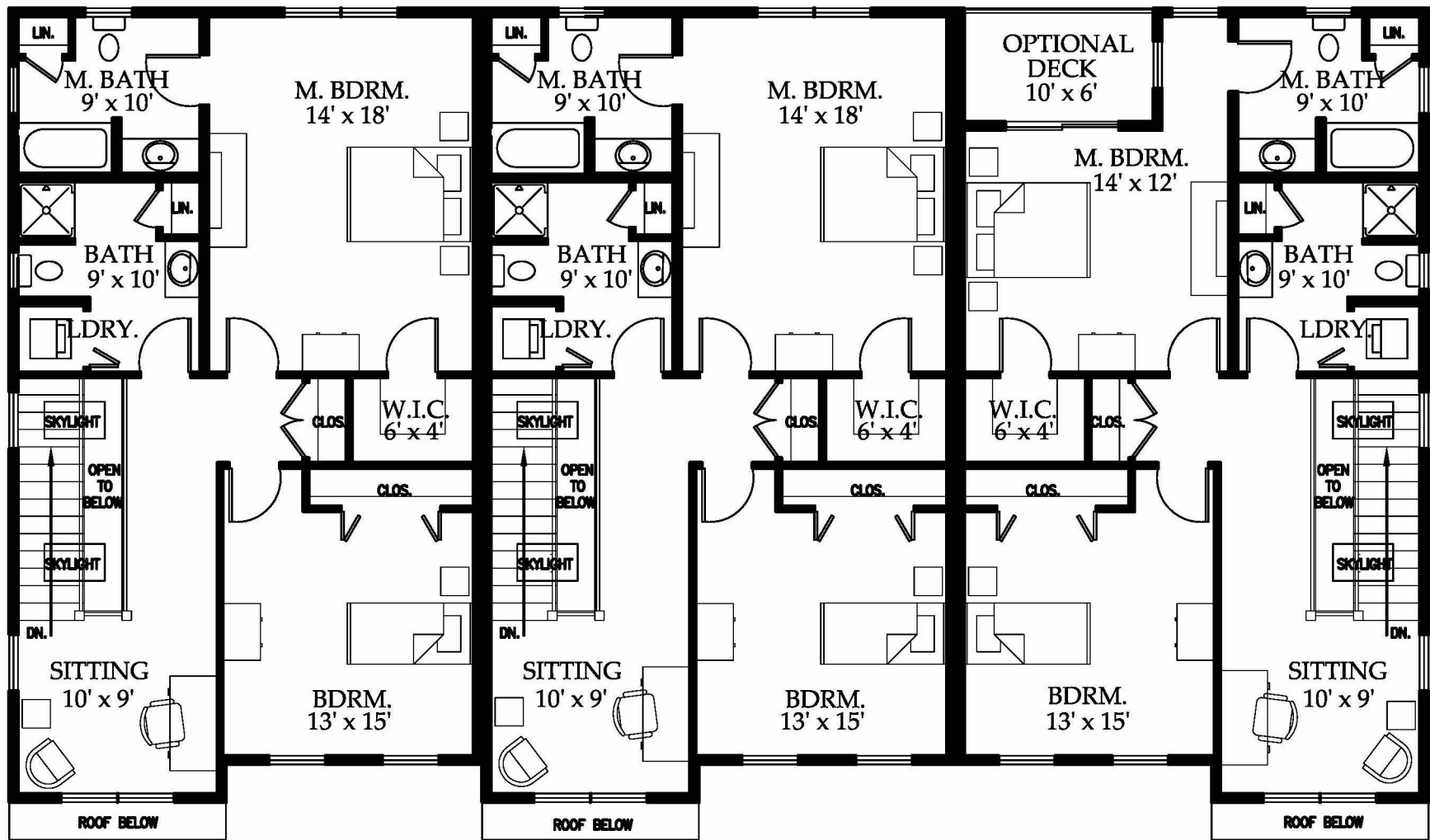
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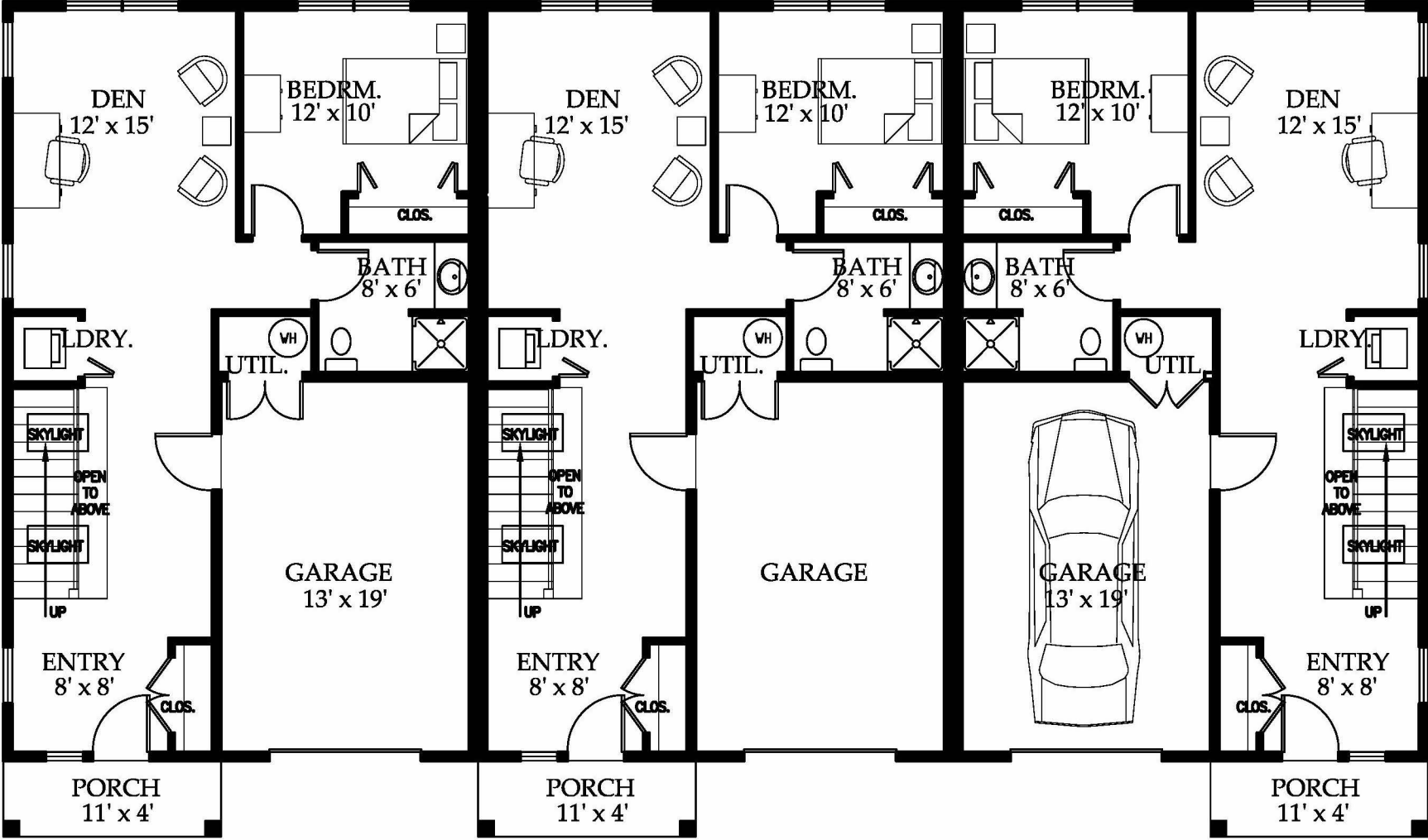
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SHEET TITLE
TOWNHOUSE-TYPE 1 SECOND FLOOR PLAN

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02597



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FIRST FLOOR PLAN

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